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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/081,078	02/21/2002	Adam E. Norton	SEN-020	2338
28584	7590	05/03/2005	EXAMINER	
STALLMAN & POLLOCK LLP SUITE 2200 353 SACRAMENTO STREET SAN FRANCISCO, CA 94111			CHANG, AUDREY Y	
			ART UNIT	PAPER NUMBER
			2872	

DATE MAILED: 05/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/081,078

Applicant(s)

NORTON, ADAM E.

Examiner

Audrey Y. Chang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 January 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 27-30 and 33-46 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 27-30 and 33-46 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Remark

- This Office action is responsive to Applicant's amendment filed on 24 January 2005, which has been entered into the file.
- By this amendment, Applicant has amended claims 27-30 and has newly added claims 43-46.
- Claims 27-30 & 33-46 remain pending in the instant application.

Response to Amendment

1. The amendment filed on January 24, 2005 is objected to under 35 U.S.C. 132(a) because it introduces new matter into the disclosure. 35 U.S.C. 132(a) states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: the amended claims 27-28, 39-42 and newly submitted claims 45-46 recited the feature "a permutation thereof". The specification only gives the support for the thickness ratios of 1:3:9 and 4:3:9 but not other "permutations" explicitly.

Applicant is required to cancel the new matter in the reply to this Office Action.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. **Claims 27, 28 33-42, and 45-46 are rejected under 35 U.S.C. 112, first paragraph**, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that

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the inventor(s), at the time the application was filed, had possession of the claimed invention. The reasons for rejection based on the newly added matters are set forth in the previous paragraphs.

4. **Claims 27-30 and 33-46 are rejected under 35 U.S.C. 112, first paragraph**, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The specification and the claims fail to teach how could three birefringent plates with certain thickness or thickness ratios or certain angles between polarization axes of the plates will make the three birefringent plates a “*depolarizer*”. The depolarization is a result of the certain combination of the “retardance frequency” of the birefringent plates. The retardance is a function of the *thickness* but is also more importantly a function of the *refractive indices* in the ordinary and extraordinary directions of the birefringent plates. The retardance frequency ratio of the plates is the essential factor for the depolarization function. And only if the plates are of the *same material* then the retardance ratio becomes the *thickness* ratio. The thickness of the plates therefore will not make the plates “depolarization”. Simply by reciting the relative angle of axes of the birefringent plates also does not make the plates “depolarizer”.

Claim Objections

5. Claims 29, 39 and 41 are objected to because of the following informalities:

(1). The term “polarization angle” recited in claim 29 it is wrong. It should be “angle between the polarization axes of the two plates”. Appropriate correction is required.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. **Claims 27-28 and 33-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hakimi (US Pat. No. 5,432,637).**

With regard to claims 27 and 28, Hakimi discloses the invention as claimed—[a] depolarizer [see Fig. 1] with three birefringent plates [see, e.g., col. 4, ll. 46-56: i.e., claim 2]—**EXCEPT FOR** explicit teachings of the respectively recited thickness ratios or a permutation thereof. Hakimi does however disclose three birefringent plates nearly satisfying the 1:3:9 thickness ratio recitation and does teach the birefringent plates have the condition such as the proper retardance frequency combination and relative angle between the polarization axes. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the invention of Hakimi such that its three birefringent plates have the thickness ratios, (and therefore retardance frequency combinations), respectively recited in these claims, for at least the purpose of optimizing a depolarizing effect, the reference clearly disclosing the teaching of three birefringent plates having different thicknesses relative to one another, because it has been held that discovering optimum values of result-effective variables involves only routine skill in the art. *In re Boesch*, 617 F.2d, 205 USPQ 215 (CCPA 1980).

With regard to claims 33 & 34, it is asserted that the relative thicknesses taught by Hakimi further are such that at least one retardance frequency would vanish in a first quadrant.

With regard to claim 35, Hakimi explicitly teaches where the thicknesses of the three plates are selected such that the plate of intermediate thickness is positioned between the two remaining plates. See Fig. 1.

With regard to claim 36, the teachings set out in the Hakimi reference implicitly, if not explicitly, encompass an arrangement of said three plates where the thicknesses of the three plates are selected such that the plate of least thickness is positioned between the remaining two plates. See, e.g., claims 1 and 2, in which the order in which said at least three plates are arranged is not limited to the exemplary ordering between same that is depicted in Fig. 1.

With regard to claims 37 & 38, Hakimi explicitly discloses wherein each of the birefringent plates has an ordinary axis, each birefringent plate having a substantially different rotation angle of the respective ordinary axis. Cf. 6 to 10 and 10 to 14 in Fig. 1.

With regard to claims 39-42, 45, and 46, please refer to comments made above regarding the rejection of like limitations recited in claims 27 and 28.

With regard to claims 43 and 44, Hakimi discloses the claimed depolarizer **EXCEPT FOR** explicit teachings wherein, with specific reference to claim 43, the respective thicknesses of the plates are 1.5 mm, 1.125 mm, and 3.375 mm; and with specific reference to claim 44, where the total thicknesses of the plates is approximately 6 mm. Notwithstanding this observation, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have constituted said depolarizer such that, in the case of claim 43, the respective thicknesses of the plates be 1.5 mm, 1.125 mm, and 3.375 mm, and in the case of claim 44, the total thicknesses of the plates is approximately 6 mm, for at least the purpose of enabling sufficient depolarization to take place, because it has been held not only that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art (*In re Aller*, 105 USPQ 233 (CCPA 1955)), but also

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that discovering an optimum value of a result-effective variable—total thickness, in this instance— involves only routine skill in the art (*In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980)).

Allowable Subject Matter

8. The following is a statement of reasons for the indication of allowable subject matter: of the prior art references considered none has disclosed a depolarizer that is comprised of three birefringent plates of the *same* birefringent materials having thickness ration of either 1:3:9 or 4:3:9 and such that the first angle between polarization axes of a first adjacent pair of the plates is substantially $\left(n + \frac{1}{2}\right)\frac{\pi}{2}$, and a second angle between polarization axes of a second adjacent pair of the plates is substantially

$n\frac{\pi}{2} \pm \arccos(-1/3)/4$, where n is an integer.

Response to Arguments

9. Applicants' arguments filed 24 January 2005 with respect to the rejection of claims 27, 28, 33-38, and 39-42 under 35 U.S.C. § 112, second paragraph, have been fully considered and are persuasive. Accordingly, the previously asserted rejection of claims 27, 28, 33-38, and 39-42 under 35 U.S.C. § 112, second paragraph, has been withdrawn.

10. The newly amended and newly submitted claims have been fully considered and they are rejected for the reasons stated above.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Audrey Y. Chang whose telephone number is 571-272-2309. The examiner can normally be reached on Monday-Friday (8:00-4:30), alternative Mondays off.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn can be reached on 571-272-2312. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A. Chang, Ph.D.

Audrey Y. Chang
Primary Examiner
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